

## CLAIMS

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1. A method of estimating channel coefficients ( $h$ ) in a multi carrier system operating in accordance with a block-code based transmit diversity scheme, in which a data content ( $\mathbf{C}^{(i)}$ ) of a code matrix ( $\mathbf{C}$ ) is multiplexed in a frequency domain, comprising:
    - a) determining a phase ramp ( $\varphi_{est}$ ) in the frequency domain or an equivalent ( $\Delta t$ ) thereof in the time domain, the phase ramp ( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof being comprised within a receive signal ( $\mathbf{y}_{\Delta t}$ ) after timing synchronization;
    - b) processing the receive signal ( $\mathbf{y}_{\Delta t}$ ) to remove the phase ramp ( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof; and
    - c) estimating the channel coefficients ( $h$ ) on the basis of the processed receive signal ( $\mathbf{y}_{\Delta t}$ ).
  - ( ) 2. The method of claim 1, wherein the phase ramp ( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof is determined by way of estimation.
  3. The method of claim 2, wherein the estimation is performed by linear regression.
  4. The method of one of claims 1 to 3, further comprising the step of performing timing synchronization with the object of minimizing intersymbol interference.
  - 35 5. The method of one of claims 1 to 4, wherein at least one of steps a) and b) is performed in the frequency domain.

6. The method of one of claims 1 to 4, wherein at least one of steps a) and b) is performed in a time domain.
7. The method of one of claims 1 to 6, wherein after timing synchronization the receive signal ( $\mathbf{Y}_{\Delta t}$ ) is split and fed into a channel estimation branch (56) on the one hand and a demodulation branch (58) on the other hand, and wherein the phase ramp ( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof is removed in the channel estimation branch (56).
8. The method of one of claims 1 to 6, wherein after timing synchronization the receive signal ( $\mathbf{Y}_{\Delta t}$ ) is split and fed into a channel estimation branch (56) on the one hand and a demodulation branch (58) on the other hand, and wherein the phase ramp ( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof is removed prior to splitting of the receive signal ( $\mathbf{Y}_{\Delta t}$ ).
9. The method of one of claims 1 to 7, further comprising introducing the phase ramp ( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof into the estimated channel coefficients ( $\hat{\mathbf{h}}$ ).
10. The method of one of claims 1 to 9, further comprising demodulating the receive signal ( $\mathbf{Y}_{\Delta t}$ ) utilizing the estimated channel coefficients ( $\hat{\mathbf{h}}$ ).
11. The method of one of claims 1 to 10, wherein the block-code based transmit diversity scheme of space-frequency block coding (SFBC) or of permutation in the frequency domain is employed.
12. A computer program product comprising program code portions for performing the steps of one of claims 1 to 11 when the product is run on a computer.
13. The computer program product of claim 12 stored on a computer readable recording medium.

14. An estimating stage (60) for estimating channel coefficients ( $h$ ) in a multi carrier system operating in accordance with a block-code based transmit diversity scheme in which a data content ( $\mathbf{C}^{(i)}$ ) of a code matrix ( $\mathbf{C}$ ) is multiplexed in a frequency domain, comprising:
  - a) a unit (48) for determining a phase ramp ( $\varphi_{est}$ ) in the frequency domain or an equivalent ( $\Delta t$ ) thereof in the time domain, the phase ramp ( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof being comprised within a receive signal ( $\mathbf{Y}_{\Delta t}$ ) after timing synchronization;
  - b) a unit (50) for processing the receive signal ( $\mathbf{Y}_{\Delta t}$ ) to remove the phase ramp ( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof; and
  - c) a unit (44) for estimating the channel coefficients ( $h$ ) on the basis of the processed receive signal ( $\mathbf{Y}_{\Delta t}$ ).
15. The estimating stage according to claim 14, further comprising a node (54) for splitting a signal path (55) after timing synchronization into a channel estimation branch (56) on the one hand and a demodulation branch (58) on the other hand, and wherein the unit (50) for processing the receive signal ( $\mathbf{Y}_{\Delta t}$ ) is arranged in the channel estimation branch (56).
16. The estimating stage according to claim 14, further comprising a node (54) for splitting a signal path (55) after timing synchronization into a channel estimation branch (56) on the one hand and a demodulation branch (58) on the other hand, and wherein the unit (50) for processing the receive signal ( $\mathbf{Y}_{\Delta t}$ ) is arranged in the signal path (55) prior to the node (54).
17. The estimating stage according to claim 14 or 15, further comprising a unit (52) for introducing the phase ramp

( $\varphi_{est}$ ) or the equivalent ( $\Delta t$ ) thereof into the estimated channel coefficients ( $\hat{h}$ ).

18. A transceiver of a wireless communication system comprising a receiver stage (40) with an estimating stage (60) according to one of claims 14 to 17.